ATTACHMENT 5. WORK PLAN

The work plan must be consistent with and support the budget and schedule. The level of detail must be sufficient for the work plan to function as the scope of work for the agreement and to allow reviewers to understand the level of effort of the work being performed as to further substantiate the cost estimates in the budget. If the applicant does not have an existing GWMP, then it should use this section to detail the process by which one will be created. The work plan should include, at a minimum, the following items:

- **Scope of the proposed project including (as appropriate) maps of agency area and area of proposed tasks;**

The purpose of the proposed Project is to install two new monitoring wells near the West Coast Basin Barrier to monitor, track and study the underground behavior of highly advanced treated recycled water. The construction process to install the monitoring wells is described further below. The reason for installing these two new monitoring wells to accompany one existing monitoring well is described in detail in Attachment 4.

There are three maps depicting the locations of the existing West Basin Municipal Water District (West Basin) monitoring well and the two proposed monitoring wells. These were included in Attachment 4.

- **Specific purpose, goals, and objectives of the proposed project related to improving groundwater management and implementing the GWMP and/or where applicable the IRWM Plan;**

Project Goals Compared to GWMP Goals

The project goals as compared to both the goals and objectives outlines in the GWMP and the objectives in the Greater Los Angeles County Region Integrated Regional Water Management Plan (GLAC IRWMP) are shown in the table below.

Project Goals	**GWMP Goals**	**IRWMP Goals**
Secure sustainable water resources	Goal 2: Provide Basin Replenishment Objective 2: Ensure Available Water Sources for Purpose of Replenishing Groundwater Supply	Objective: Improve Water Supply: Optimize local water resources to reduce the Region's reliance on imported water.
Protect drinking water quality	Goal 1: Protect and Preserve Water Quality in the Central and West Coast Basins Objective 1: Monitor Water Quality of the Basins	Objective: Improve Water Quality: Protect and improve groundwater and drinking water quality.
Protect groundwater quality from seawater intrusion	Goal 1: Protect and Preserve Water Quality in the Central and West Coast Basins Objective 2: Mitigate Seawater	Objective: Improve Water Quality: Protect and improve groundwater and drinking water quality.

Project Goals	GWMP Goals	IRWMP Goals
	Intrusion	
Track and monitor underground behavior of injected advanced treated recycled water	Goal 1: Protect and Preserve Water Quality in the Central and West Coast Basins Objective 3: Address Groundwater Contamination and Prevention Issues	Objective: Improve Water Quality: Protect and improve groundwater and drinking water quality.

Greater Los Angeles County Region Integrated Regional Water Management Plan (GLAC IRWMP)
Projects included in the Water Replenishment District's (WRD) 2003 Strategic Plan are also included in the Greater Los Angeles County Region (GLAC) IRWMP. WRD has been actively involved in the development of this plan and is a Leadership Committee member acting as the Chair of the Lower Los Angeles / Lower San Gabriel River Steering Committee and a member of the South Bay Steering Committee, which is part of the West Coast Groundwater Basin. WRD has been active members in both Steering Committees and the Leadership Committee since formation of the IRWMP in 2005.

West Basin is also a Leadership Committee member acting as the Chair of the South Bay Steering Committee and a member of the North Santa Monica Bay Steering Committee which is part of the northwest portion of our service area. West Basin's projects are also included in the GLAC IRWMP.

The South Bay Steering Committee was actively involved in the development of the first adopted-IRWM Plan in 2005 and most recently, the updated IRWM-Plan which will be completed in early 2013 from a $1,000,000 competitive grant received from the Department of Water Resources. The Steering Committee meets on a monthly basis to not only discuss IRWMP-related activities but also agency-related issues including groundwater and surface water supplies, water quality issues of these supplies and coordination of projects amongst agencies and entities that participate in the Steering Committee.
In addition to participation in the IRWM Region, West Basin participates in the monthly meetings of the West Basin Water Association which is an association of the groundwater pumpers in the West Coast Groundwater Basin. This group discusses updates on groundwater pumping activities, planning activities and agency/city-specific activities. This is the ideal forum to discuss changes to replenishment activities, issues with water quality that affect the blend of imported water and recycled water into the Barrier system and changes in well activity.

↳ Work items to be performed under each task of the proposed tasks (consistent with the budget and schedule).

The work items for the installation of two groundwater monitoring wells to monitor the injection of recycled water along the West Coast Basin Barrier Project will be performed under the following tasks:

Task 1 – Project Administration;
Task 2 – Environmental Documentation and Permitting;
Task 3 – Preparation of Construction Contract Documents;
Task 4 – Bidding and Award of Construction Contract;
Task 5 – Monitoring Well Construction and Documentation;
Task 6 – Monitoring Progress and Performance;
Task 7 – Project Deliverables for Assessing Progress and Accomplishments; and
Task 8 – Construction Outreach.

A description of each task and work items associated with each of these tasks is provided in the following paragraphs.

Task 1 – Project Administration

This task will include the administration of the Project by internal West Basin staff personnel. The District Project Engineer and Water Quality Specialist will both play a significant role in the implementation of the Project. The District Project Engineer will be responsible for managing Task 1a (described below) as well as the contract for design and construction. The Water Quality Specialist will manage the production of the Environmental Documentation (Task 2) and provide as necessary to the design of the Project to ensure that permitting requirements are met.

Task 1a – Engineering Consultant Selection

After grant award, West Basin will select a qualified consultant to provide engineering design and support services for the Project. The engineering consultant selection process will include the following work items.

- **Request for Proposal (RFP)** – West Basin will prepare a Request for Proposals (RFP) for engineering design and construction support services.

- **Proposal Preparation Period** – West Basin will solicit a small group of pre-qualified consultants (minimum of three consultants) to perform the required services. West Basin will conduct a Pre-proposal Meeting to discuss project background, scope of work, schedule and budget for project delivery. The RFP will also specify a schedule for questions and answers period and proposal submittal date.

- **Clarifying Questions and Answers Period** – West Basin will address Project and Proposal related questions at the Pre-Proposal Meeting, as well as, issue Addendums as deemed necessary after the Pre-Proposal to further clarify any questions.

- **Evaluate and Rank Proposals** – West Basin will review and evaluate proposals for best value selection. The evaluation process will consist of responsiveness to the RFP, proposed technical approach, qualifications and experience of proposed project team, and project management approach and cost. If necessary, West Basin may request a proposal interview of a short-list of consultants that submitted complete and responsive proposals.

- **Consultant Selection and Recommendation to Engineering and Operations Selection** – West Basin will select the consultant that is most qualified and provides the best overall value. West Basin may negotiate costs and/or scopes of services with the selected consultant. West Basin may consider a second or third consultant if unable to reach an agreement on the scope of service or the cost with the first selection.

- **Recommendation to Board** – West Basin will recommend to the Board retaining the services of the most qualified engineering consultant firm.

- **Contract Award** – Following Board approval, West Basin will complete contracting with the successful engineering consultant and provide a notice of award.

Task 2 – Environmental Documentation and Permitting

As a public agency, West Basin has a full staff to comply with all environmental permitting, regulation and reporting. West Basin intends to begin immediately on environmental documentation for the two new wells following grant award. Two monitoring wells, each located in separate cities in public right-of-ways out of traffic, should require limited CEQA evaluation. West Basin may attempt to file a Class 3 Categorical Exemption. However, time and budget for more extensive CEQA documentation is being accounted for and a consultant is on call to assist with rapid preparation of a Mitigated Negative Declaration if necessary.

The Environmental Water Quality Specialist will work with the construction management team to assure that proper encroachment, right-of-way and drilling permits are obtained from the local cities (Redondo Beach and Manhattan Beach) as well as the County of Los Angeles. The contracted Hydrologic Engineering firm is on contract to assist with well completion report filings. The project team has scheduled nearly five months for all permit acquisition, but intends for most to be completed within three months beginning May 3, 2013. The compliance team, along with the on-call contracted specialist has already invested in this Project to assure that permits will not delay the drilling of two new water quality improvement monitoring wells.

Task 3 – Preparation of Construction Contract Documents

West Basin's engineering consultant will review Project background information, including the hydrogeologic information pertaining to water levels, water quality, and the placement of monitoring wells for the West Coast Basin Barrier Project. West Basin's engineering consultant will identify any data gaps that may exist that are critical to the successful mission of the Project. Contract documents will be prepared for the purposes of obtaining bids for construction service installation of the two monitoring wells. A description of the components of the contract document is provided below.

- **Plans and Specifications** – These documents will provide the standards for installing the two monitoring wells including a detailed description of the field procedures and specifications for drilling, well construction, development, and testing. These procedures will be consistent with the California Department of Water Resources Monitoring Well Standards (Bulletin 74-90). The proposed well design will be based on geological data from other wells constructed in the area. A "typical" monitoring well construction (e.g. conceptual well design diagram) is provided as an attachment to this document. In general, the plans and specifications will include the following components

    - A description of the hydrogeology at each site;
    - A list of analytical tests to be performed on soil and groundwater samples;
    - A preliminary well design diagram;
    - Specifications of materials to be used in the well construction;
    - Specifications of the and depth of placement for well construction materials;
    - Methodology for well construction;
    - Noise abatement plan outlining procedures for resident and law-enforcement notification, if

necessary;

- Permit requirements;
- Preliminary implementation schedule;
- Site Health and Safety Plan; and
- Waste Handling Plan. It is anticipated that the excess soil and groundwater from the drilling will not be contaminated. However, if the waste materials are tested and found to be contaminated, the waste materials will be handled in accordance with the District's policies and in accordance with the local laws and regulations. If no contaminants are detected, the wastes will be handled as non-hazardous and disposed at appropriate facility in accordance with regulatory agencies.

- **Contract Bid Documents** – West Basin's engineering consultant will prepare bid documents to be used to solicit bids from qualified construction firms to construct the two groundwater monitoring wells. The contract bid documents will include documents that describe monitoring well construction specifications, procurement and contracting requirements, and invoice submittal and payment procedures.

- **Engineer's cost estimate** – West Basin's engineering consultant will provide an estimate of probable construction costs to West Basin for budgeting purposes.

Task 4 – Bidding and Award of Construction Contract

West Basin will post the Construction Bid Documents on the BidNet System, an on-line procurement services system, which the Board of Directors of West Basin adopted several years as part of the procurement policy. West Basin's engineering consultant will assist with the Bid Document preparation, Pre-Bid Meeting, Issuance of Addendums as needed, and review of the Bids for award of Construction Service Contract. West Basin will conduct a Pre-Bid Meeting to address Project Background, Project Schedule and Contract Administration issues. At the Pre-Bid Meeting, West Basin will specify the schedule for Questions and Answer period and Bid Submittal. After receipt of bids, West Basin will select the most qualified subcontractors to perform the proposed scope of work. The bid evaluation criteria will include, but not limited to: completeness of the bid in accordance with Bid Documents requirement and the California Public Works Contract Code, contractor's availability, qualification and experience of the contracting team for similar project, contractor's past performance, effectiveness of the proposed methods and techniques, and cost. West Basin's engineering contractor may consider other subcontractors if it is unable to reach agreement with its first choice on the scope of services or the cost.

Task 5 – Monitoring Well Construction and Documentation

Work items that will be performed for the monitoring well construction and documentation are described below.

5.1 Well Siting

It is currently planned that the two proposed groundwater monitoring wells will be sited within the public right-of-way of City of Redondo Beach and City of Manhattan Beach. West Basin's engineering consultant will evaluate the best location for the installation of the two proposed monitoring wells based

on the hydrogeologic data and field logistics including access, permitting, and placement in the public rights-of-way.

5.2 Obtain Well Permit (County)

Prior to drilling, West Basin's engineering consultant will secure well installation permits for the construction of the two groundwater monitoring wells from the County of Los Angeles Environmental Health Department. Additionally, in accordance with the provisions of the well permit, following completion of well construction, a Well Completion Report will be submitted to the California Department of Water Resources.

5.3 Obtain Encroachment/Right-of-Way Permit (City)

It is currently planned that the two proposed groundwater monitoring wells will be sited on public right-of-way. The construction selected to perform the construction work will secure a city encroachment permit or right-of-way permit from respective cities, as appropriate, prior to initiating site work.

5.4 Underground Utility Locate

Prior to drilling, the contract selected to perform construction work will notify the Underground Service Alert (USA) to identify the locations of public utility lines in the vicinity of the proposed well site. Additionally, a geophysical survey will be performed at the borehole locations to confirm that subsurface utilities will not be encountered during drilling.

5.5 Drilling and Monitoring Well Construction

West Basin's engineering consultant will provide full-time site inspection services, by an experienced geologist to document field activities and provide a continuous record of earth materials encountered during drilling. The field activities will be carried out under direct supervision of a California Professional Geologist (PG). Drilling activities will be conducted during daytime and in accordance with respective cities' encroachment permit to minimize disturbance to residents. Field activities that will be performed during drilling and monitoring well construction are outlined below.

- Prior to advancing the borehole with the drilling equipment, each drill site will be initially probed to a depth of eight feet below ground surface (bgs) using an air vacuum (e.g. air knife) or a hand auger to avoid damaging any subsurface improvements that may have not been identified by USA or the subsurface utility geophysical survey.

- Advance an eight-inch diameter borehole to approximately 310 feet bgs by the sonic drilling method. The sonic drilling method utilizes a drill bit that is physically vibrated up and down in addition to being pushed down and rotated. This method allows rapid penetration through most sediment formations, provides for the collection of relatively undisturbed soil core samples for accurate lithologic logging, eliminates the need to use of heavy drilling mud which minimizes waste disposal cost and facilitates well development, and requires smaller equipment "foot print" compared to fluid circulation drilling methods.

- Collect and log soil cores at five-foot intervals and at lithologic changes. Lithologic information collected during drilling activities will be used to verify the subsurface geologic conditions and properly target the hydrostratigraphic unit of interest for the placement of the well screen. The soil cuttings will be logged using the Unified Soil Classification System (USCS) and soil color will be described according to the Munsel color chart. A field log of encountered soil will be prepared by the on-site geologist. A representative portion of each five-foot sample interval will be retained in labeled plastic trays for future reference. In addition, a portion of the soil core samples will be temporarily collected in zip-lock style plastic bags and screened for volatile organic compound vapors using a portable photo-ionization detector in the field to confirm that

materials are not contaminated. If contamination suspected the soil sample will be collected in a laboratory supplied container and submitted to a laboratory for further characterization.

- Install monitoring well casing in the borehole. A conceptual groundwater monitoring well design is attached. The groundwater monitoring well design is preliminary. The final well design will be prepared after review of site-specific lithologic and hydrogeologic field data. Well construction materials will likely include three-inch inside diameter PVC Schedule 80 blank casing and 0.020-inch factory slotted screen. The lowermost five-foot section will consist of blank casing and will function as a sump. Well casing and screen will have flush threaded connections. Centralizers will be placed on the casing at approximately every 80 feet from the base of the well to maintain a minimum two-inch clearance between the casing and the borehole wall. The centralizers will be stainless steel cage assemblies clamped to well casing. As additional insurance against sand bridging, a tremie pipe will be used to install the filter pack and borehole seal.

- Place #3 filter sand or an approved alternate approximately five feet above and below the screened interval, using a tremie pipe. Approximately three feet of fine-grained transition sand (#60 sand) or bentonite seal will be installed above the filter pack to prevent migration of overlying sealing material.

- Install an annular well seal using 10.3 sack sand-cement or neat cement slurry, or an approved alternate. This seal will be placed in the borehole annular space from the top of the bentonite/sand seal to approximately two to three feet bgs using a tremie pipe. Concrete will be used for a surface seal around the wellhead to isolate the wellbore from surface runoff. A flush-mounted heavy-duty, traffic-rated surface completion assembly with a water-tight well casing cap will be installed at the surface.

- Following well construction, each well will be developed to ensure good hydraulic communication between the well and the surrounding formation. The process of well development accomplishes the following: 1) removes well construction residue, 2) settles the gravel pack, 3) enhances hydraulic connection between the well, gravel pack and aquifer, and 4) maximizes the yield and efficiency of the monitoring well. The well development process will includes swabbing following gravel pack emplacement, removing materials introduced into the casing during swabbing, installing a down-hole test pump and pumping and swabbing of the well until the well produces relatively clear water, minimum sand production, and maximum hydraulic efficiency. Pump development will continue until the field parameters consisting of pH, temperature, turbidity, and conductivity become stable, the turbidity reading of 50 NTUs have been reached, or a maximum of three hours. Three readings within 10 percent taken on a frequent basis will be used to determine stabilized field parameters. After completion of development pumping, the depth of the well will be measured to determine the amount of sediment deposited in the bottom. If the amount of sediment is greater than one foot, the sediment will be removed.

- Survey elevation and horizontal coordinates of the monitoring wells. The survey will be performed by a licensed surveyor.

- Collect water level measurements and water quality samples, if necessary, from the monitoring wells approximately one week after well development to ensure that the stable conditions has been reached in the aquifer.

- Solid and liquid wastes (soil and water) will be generated during well construction. Waste soil and water will be containerized separately in drums, bins or tanks and labeled with date

accumulation began, contents, and source. The waste materials will be sampled, profiled, and disposed of off-site at an appropriate waste receiving facility.

- Prepare a draft Well Construction Data Report summarizing the field activities and sampling results. Following receipt of comments, the Well Construction Data Report will be finalized. A DWR driller's well completion report will be prepared by the drilling contractor and submitted to DWR as required by the county well permit for each well.

Task 6 –Monitoring Progress and Performance

- **RFP Preparation** – An experienced and qualified team of West Basin staff including administration and technical staff, including a California Professional Geologist or Engineer, will review and evaluate the RFP prior to issuance. The RFP will be reviewed for accurate project background information, scope of work, contractual and technical soundness with respect to industry and West Basin's standards, relevancy, meeting the project schedule, and cost efficiency.

- **Design contract award** – West Basin will solicit prequalified engineering consultants with the Project RFP. Upon submitting the RFP, West Basin will conduct a Pre-Proposal meeting to discuss the Project Background, Scope of Work, Project Schedule, and Budget. West Basin staff's recommendation for the design contract award will be based on completeness of the proposal per the RFP requirement, demonstration of qualifications and experience with similar projects, adherence to project cost, and best value to West Basin. The prospective consultant's performance will be monitored through progress reports based on meeting the project schedule and budget.

  Design on construction plans, specifications and estimates – West Basin will review, evaluate, and monitor the progress and performance of the engineering consultant based on 50%, 90%, and 100 % design submittals.

- **Review of contractor's bids and well construction work** – West Basin's engineering consultant will assist West Basin to review the submitted bid for completeness of the Bid in accordance with West Basin's requirements and latest Public Work Contract Codes. West Basin's engineering consultant will review, evaluate, and monitor the progress and performance of contractor's work and work by its subcontractors. For example, during the construction phase, the field work progress and performance will be monitored by establishing and achieving critical path construction milestones and preparing and submitting two-week look ahead schedules.

Task 7 – Project Deliverables for Assessing Progress and Accomplishments

West Basin's project deliverables for assessing progress and accomplishments include regular bi-weekly progress reports that describe activities performed and updates to the project baseline schedule.

Task 8 – Construction Outreach

West Basin will have a construction outreach plan in place to inform the residents and businesses within the area of the construction of the monitoring wells about the Project. For a construction project such as this, there is a list of specific tasks that are accomplished that are critical to informing the public about the Project.

West Basin will ensure that the goals for this Project are achieved. West Basin will ensure the monitoring wells are constructed on schedule, within budget and that all impacted parties are informed and know what to expect during construction and project implementation. It is important to note, however, that the outreach plan will remain flexible to ensure that necessary refinements are made to the approach when or if unexpected issues arise to ensure the success of the construction awareness program and to protect the reputation of West Basin and its relationships with key stakeholders including the Cities of Manhattan Beach and Redondo Beach.

8.1 Project Management

Strong project management is critical to the success of this project because of the sensitivity of the project being constructed both in a parkway in a residential neighborhood in the City of Redondo Beach and a street median in a commercial/retail area in the City of Manhattan Beach.

8.2 Conduct Reconnaissance of Project Area

The key objective of the reconnaissance task is to determine key stakeholders, institutions, governing jurisdictions and others who may be affected by construction and identify anticipated issues, needs, options, opportunities and concerns about the project and outline the nature of the impacts on these stakeholders. Potential issues and concerns will be analyzed and we will assess potential solutions and the best communication strategies with the various audiences. This information will also help determine the best tactics to employ for the construction awareness program.

8.3 Develop Construction Awareness Plan

After the reconnaissance of the area is complete, we will develop a strategic construction awareness plan detailing how we would communicate with those potentially affected by the construction of this Project. Tactics in such a plan may include:

- **Direct mail**: A letter will be sent to the residents, businesses and property owners within two blocks of the construction to introduce them to West Basin and this Project provide the basic information about the project and how we will communicate with them about the construction of the pipeline. Also included with the letter will be a schedule of any public meetings or open houses about the Project, a Project fact sheet with an alignment map, a business card with the community construction information hotline number, website and email address for information, updates and to register concerns, complaints and compliments about the Project.

- **Canvass program**: A critical part of the Construction Awareness Program is the canvass program. We will provide a door-to-door canvassing of all affected businesses and residences within the two block radius of both monitoring wells. This will speak to affected individuals about the project, address any concerns they may have, share with them how we will keep them updated about major construction activities including traffic detours, street closures and other activities, provide them with the community construction hotline number, project fact sheet and notice for any public meetings or open houses we may coordinate.

Community construction information hotline: We may establish a community construction information hotline for the public to call for updates, traffic impacts as well as to file complaints, concerns and appreciation. We will keep a log of the calls and follow up on issues within 24 hours.

8.4 Develop Collateral Materials

We would develop collateral information for the Project that may include the following below. All collateral materials will be in English and Spanish.

- Project fact sheet which will include project background, description, estimated cost of project, benefits to the community, and contact information.
- Construction notices
- Traffic advisories
- Website information

Some of the collateral material will be available on the West Basin website for the public to access information about this Project. The information or a link to the information will also be provided on the City of Manhattan Beach and City of Redondo Beach's website.

➧ Present a sound strategy for evaluating progress and performance at each step of the proposed project.

This was addressed in Task 6 above.

➧ Project deliverables for assessing progress and accomplishments, which include quarterly progress and final reports.

This was addressed in Task 7 above.

➧ If access to private property is needed, provide assurance that access can be granted. For example, if wells will be constructed or sampled on private land, submit a letter or agreement that demonstrates that access for well construction and monitoring on the property has been obtained.

The construction of the wells will take place in the public right-of-way. The permits that will need to be acquired include an encroachment/excavation permit from both the cities of Redondo Beach for the southern leg of the Barrier and Manhattan Beach for the northern leg of the Barrier.

➧ Explain the plan for environmental compliance and permitting, including a discussion of the following items: a description of the plan, proposed efforts, and approach to environmental compliance, including addressing any CEQA obligations in connection with the proposal; a listing environmental related permits or entitlements that are needed for the project; and any other applicable permits that will be required. Briefly describe the process and schedule for securing each permit/approval. Discuss necessary local drilling permits and the submittal of Well Completion Reports to DWR. Describe the proposed process for securing each environmental permit and any other regulatory agency approval.

As a public agency, West Basin has a full staff to comply with all environmental permitting, regulation and reporting. West Basin intends to begin immediately on environmental documentation for the two new wells following grant award. Two monitoring wells, each located in separate cities on public right-of-way out of traffic, should require limited CEQA evaluation. West Basin may attempt to file a Class 3 Categorical Exemption. However, time and budget for more extensive CEQA documentation is being accounted for and a consultant is on call to assist with rapid preparation of a Mitigated Negative Declaration.

The compliance staff at West Basin will work with the construction management team to assure that proper encroachment, right-of-way and drilling permits are obtained from the local cities (Redondo Beach and Manhattan Beach) as well as the County of Los Angeles. The contracted Hydrologic Engineering Company is on contract to assist with well completion report filings. The Project team has scheduled nearly five months for all permit acquisition, but intends for

most to be competed within three months beginning May 3, 2013. The compliance team, along with the on-call contracted firm, has already invested in this Project to assure that permits will not delay the drilling of two new water quality improvement monitoring wells.